

In the Matter of)
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IP-Enabled Services) WC Docket No. 04-36
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COMMENTS OF DONALD CLARK JACKSON

May 28, 2004

SUMMARY

I assert that the Commission's role in the regulation of communications is to ensure the unification and universality of crucial communications applications, and to regulate the monopolies (if any) that provide these applications.

Telephony has long been deemed one such crucial communications application, but I propose that Electronic Mail, the World Wide Web, and Instant Messaging now be considered equally crucial applications, and the Commission should work to ensure unification and universality of these applications.

I outline the impact of IP, VoIP, and the Internet, on the existing telephony network, and I propose changes to the structure of the telephony network that would enable end users to provide their own telephony service (with no need for a carrier, or a service provider) via the Internet, on an equal footing with today's Incumbent Local Exchange Carriers, while retaining the universal and unified telephony network we enjoy today.

I propose specific changes to the present carrier compensation system, the 911 system, and the disability access requirements to bring these elements in line with my proposed restructuring of the telephony system.

Finally, I assert that broadband Internet access is the fundamental transport capability that provides transport for all crucial communications applications, and broadband Internet providers that also choose to provide one or more of these crucial communications applications must provide equal technical and economic access to their broadband transport network to those providing competitive applications and to end users, and the Commission should ensure this by regulation.

**Before the
Federal Communications Commission
Washington, DC 20554**

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To: The Commission

COMMENTS OF DONALD CLARK JACKSON

I, Donald Clark Jackson, hereby submit my comments¹ in response to the Commission's March 10, 2004 *Notice of Proposed Rulemaking* in the above-captioned proceeding.²

I have been involved professionally in the communications and computer fields for twenty four years, and am currently employed as an engineering vice president at a communications startup company that provides speech enabled interactive voice response services and applications on an outsourced basis to major telecommunications carriers. For the past fifteen years, I have actively been involved in developing new communications applications, services, and devices. In these efforts, I have constantly encountered significant limitations and constraints that are the direct result of the current structure of the telecommunications industry. The technology transition of the telephone network from legacy circuit switched to packet switching based on the Internet Protocol (IP) provides a major opportunity to significantly

¹ My comments are my own, and do not reflect the views of my employer, or anyone else.

² *IP-Enabled Services*, Notice of Proposed Rulemaking, WC Docket No. 04-36, FCC 04-28 (March 10, 2004) [*"NPRM"*].

restructure the US telecommunications industry, which will provide more competition, many new services and applications, and lower prices for consumers.

I request that the Commission carefully consider my comments and proposals as it decides if and how to modify its regulations due to the impact of the Internet and IP-enabled applications on the US communications industry, and to adopt policies that moves the US communications industry in the direction I propose.

INTRODUCTION

Many of the issues and questions raised by the Commission in the NPRM are related to the impact of the combination of Voice over Internet Protocol (VoIP) technology, and the Internet, on the existing Public Switched Telephone Network (PSTN). It is important to clearly define the application provided by the PSTN. Today's PSTN provides one and only application: telephony. For the comments to follow, I define telephony as geographically distributed, on-demand connections, that transports point-to-point, real-time voice communications, with the endpoints of these connections identified and signaled via a universal standard addressing scheme (a.k.a. "phone numbers"); these telephony addresses are specified by the ITU E.164 standard, with the North American Numbering Plan being the US subset.

I. Review of Basis for Regulation of Telephony

In considering the need and role of regulation of IP-enabled applications, it is important to look back at why telephony was (and is) regulated.

Initially, telephony was not universal nor standardized. There were multiple, competing companies providing telephony to their subscribers. These competing telephony networks were not interconnected, so subscribers of one company could not place or receive calls to subscribers of another company. These competing companies had to each duplicate the required transmission

facilities (copper wires), and it was difficult to arbitrate, manage and maintain these competing transmission facilities over public right of ways. And these companies only provided service to densely populated, geographically limited metropolitan areas, and rural areas were often not served by any company.

Eventually it was deemed in the public and national interest to unify these disparate telephony companies, to provide a standard, unified telephony system, universally. Although, arguably, there may have been other alternatives, this goal of unification was accomplished by granting AT&T a monopoly to provide telephony. So, regulation of telephony had (and has) two aims:

1. Ensure that the telephony became and remains unified, standardized, and universally available.
2. Regulate the monopoly powers granted to provide unified, universal telephony.

As potential regulation of IP-enabled services is considered, both these interests and goals should be preserved and maintained, namely ensuring unification/standardization/universality and the control of monopoly powers (when present).

II. Exploring the Need for Regulation of Non-Telephony IP-enabled Communications Applications

With the advent of the Internet, new communications applications have been developed, and a few have achieved widespread use and adoption, and are already, or are rapidly becoming, crucial communications modalities. The three most important non-telephony IP-enabled communications applications today are electronic mail (Email), the World Wide Web (WWW), and Instant Messaging (IM).

Email and the WWW are already universal, ubiquitous applications. Anyone can participate in these international applications without subscribing to a carrier's service, although many do choose to subscribe to a provider's service, so as not to assume the burden of setting up, running, and maintaining one's own servers.

Email and the WWW have achieved universal, ubiquitous adoption without government regulation. These applications are defined by open standards and protocols developed by the IETF (for Email), and by both the IETF and the W3C (for the WWW). Implementations of both server and client software for these applications are available for no cost, and commercial products are also widely available. Since Email and the WWW are already universal, standard applications, there is no need for regulation to achieve universality. At present, no participants in the applications of Email and the WWW have monopoly powers, so there is no need for regulation of monopoly powers. The only potential I see for government regulation in this area might be to address the ongoing problem of unsolicited commercial email (UCE), commonly referred to as 'spam'. This might be handled in a manner similar to the Commission's implementation of the Do-Not-Call Registry, which addressed the problem of unsolicited commercial telephone calls, under the Commission's charter to protect consumers.

The other widely used communication application is Instant Messaging. Unfortunately, today, there is no universal Instant Messaging system; there are a number of disparate systems. Members of one IM network cannot communicate with members of another IM network. This is analogous to the early days of telephony, before AT&T was granted a monopoly, when customers of different telephone companies were unable to call each other.

Instant Messaging has achieved widespread use, and it clearly a very important new communications application. It is time to seek unification of the Instant Messaging system, so

that there are universal, standard addresses for Instant Messaging users, and that anybody using any Instant Message service can communicate with any other Instant Messaging user, independent of their Instant Message service provider (if any). Additionally, individuals and enterprises that choose to host their own IM servers should be able to interconnect with all other IM providers, over the Internet (just like Email and WWW servers can do today). An open, standard IM protocol (SIMPLE/SIP) is being developed by the Internet Engineering Task Force (IETF), and is nearing completion. SIMPLE should be the open, standard protocol that all IM systems and servers use to interconnect. The Commission should actively promote, influence, and motivate the migration of today's disparate IM systems into one universal IM network.

One potential way for the Commission to accomplish this objective would be to get the Federal government to add/implement SIMPLE compliant IM contacts for all Federal agencies and employees, to supplement the telephone numbers and Email addresses supported today, and to require that IM systems that wished to interoperate with the Federal government's IM system to also interconnect via SIMPLE with all other IM systems. Additionally, the IM application is an ideal substitute for today's Telecommunications Relay Service (TRS), which provides a real time messaging service over the telephone network for the hearing and speech impaired. The Commission should migrate the existing telecommunication carriers TRS obligations from a TTY-based system that uses the telephone system for transport, to a universal IM system based on SIMPLE. If the Commission implements these two proposals, it will provide enough benefits and advantages to the IM systems that elect to interconnect with the government and each other, that market pressure from end users will quickly motivate all other IM providers to interoperate as well. Within a few years, the IM system would almost certainly become as universal and ubiquitous as the Email system is today.

III. The Impact of the Internet, IP, and VoIP, on Telephony

A key difference between the Internet and the PSTN, is that the PSTN was designed for, and provides, exactly one application: telephony. Other uses to which the PSTN has been put, for example data transmission, have been accomplished by making them indistinguishable from telephony by the PSTN. In stark contrast, the Internet was designed to be a transport network independent of, and completely agnostic to, the applications and services provided over it. IP networks provide a common transport infrastructure that potentially infinitely many applications can utilize.

The development and maturation of VoIP technology enables telephony to be provided as just another application over the Internet, with comparable quality and reliability, and at a significantly lower cost than the legacy PSTN. This circumstance creates many new opportunities, and creates conflict and tension between the legacy PSTN and the Internet. Telephony is undergoing a revolutionary transformation, telephony is being re-implemented as just another application on the Internet.

When telephony is implemented as an application on the Internet, there is no need to aggregate telephony with transport. Existing telephony services (Vonage, and AT&T's CallVantage) are offered to consumers without transport of any kind. It is the consumer's responsibility to arrange for suitable broadband Internet connectivity.

This is a significant departure and change from yesteryear, when telephony, transport, and the telephone instrument itself were bundled and provided by the vertically integrated telephony monopoly of AT&T.

Ensuring and enabling the further disaggregation of telephony should be a primary goal and objective of the Commission. Competition, consumer choice, and the ability of third parties to

offer new services are all best served when telephony can be provided and purchased in its constituent parts, independently. Consumers should also be able to purchase complete solutions, in a bundled manner, if they do not want to exercise their option to “assemble” their telephony solution piecemeal.

IV. The Importance of Standard Interfaces and Protocols for Interconnection

Prior to 1984, the US phone system was unified and standard because one company provided it. After the breakup of AT&T in 1984, the US phone network has been provided by multiple companies. But the US telephone network continues to be uniform and standard, because the various companies that (together) comprise the US telephone network interconnected their networks. Two factors are crucial to provide uniform, standard applications:

1. A standard interconnection protocol and addressing scheme: All providers that comprised the US telephone network connected to each other via a standard protocol: Signaling System #7 (SS7). Having one standard protocol minimized development cost for network equipment, and minimized the effort and cost incurred for providers to interconnect their networks. The standard addressing scheme for the US telephone network is the NANP.
2. Interconnection requirements: All providers of telephony were required to interconnect with each other. This enables universal reach-ability, so subscribers of one provider can place or receive calls with subscribers of another provider. Telephony providers cannot refuse to interconnect with another provider.

The Commission should require interconnection by application providers via open, standard protocols, to promote uniform, universal, and standard applications. Traditionally the Commission has elected to not dictate the technical standards that telephony carriers use within their networks, so that, for example, a wireless telephony carrier could choose whatever

technology they deemed best for their own network (e.g. AMPS, TDMA, GSM, or CDMA), and I am not proposing a change to this. I do propose that for applications for which there is a need to be provided universally, that an open, standard interconnection protocol be mandated, and that interconnects be offered to all comers, via the Internet.

V. IP-Enabled Applications (including Telephony) Should Not Require Carriers or Service Providers

The existing PSTN was designed and implemented in a way that requires carriers or service providers: end users simply cannot connect to the network except as subscribers of a designated carrier. It is prohibitively difficult and expensive for an end user to attempt to become his or her own carrier in today's PSTN.

But the other widely used IP-enabled applications do not have this property, an end user can easily join the worldwide network, with no need of a carrier or service provider. The electronic mail system provides a good example: anyone can chose to run their own email server, and send/receive email to/from anyone on the Internet, with no need to be a subscriber of an "email carrier". And the costs to do so are very reasonable:

- An end user can register a domain name (which provides the basis of their email address) for as little as \$10/year,
- High quality implementations of the software required to run an email server on a personal computer are available at no cost,
- Broadband Internet connectivity (including a static IP address) can be obtained for less than \$40/month
- A personal computer needed to run this software can be purchased for about \$400.

This end user could simultaneously use this same equipment to also run his or her own server for the World Wide Web, to run his or her own Domain Name Service server, and to run

many other Internet/IP applications, so the modest costs outlined above can readily be shared among many applications. Of course, one can also choose to obtain electronic mail from a service provider, and millions of people elect to do so. But it is ultimately the end user's choice. No one is precluded from running their own email server, and those that do so do not lose any functionality, they have the same functionality and interconnection rights as any carrier provided email address. But today, end users are precluded from participating directly in the telephone system.

Historically, the Commission has striven to increase competition in the telephone network, Moving forward, the Commission should mandate changes to the infrastructure of the telephone network to enable end users (individuals and enterprises) to join the US/International telephone network on equal footing with today's telephone carriers. To enable this, the Commission should mandate:

1. Telephone numbers must be obtainable by anyone, for a reasonable cost, just like Internet domain names. Today, telephone numbers can only be obtained by telephone carriers.

The Commission took a crucial first step by mandating number portability, first between landline carriers, and most recently number portability was expanded to include wireless carriers. But the next step is to allow end users to directly obtain telephone numbers, without the need to go through a carrier.

2. The processing and routing of telephone calls must be provided on open, standard protocols, and anyone must be free to participate in the telephone signaling system.

Today, only carriers are permitted to make the number portability queries (via TCAP/SS7) into closed databases to determine the destination/route of a call, and only other carriers are allowed to be the destinations of these calls (SS7 point codes are only assigned to

registered carriers). All phone numbers must remain reachable by any other phone: individuals and enterprises running their own telephony servers must be able to make calls to telephone numbers handled by telephone carriers, and a telephone carrier's subscribers must be able to call phone numbers handled directly by individuals or enterprises. All phone numbers should be registered in a publicly available and query able database, just like domain names are today. Individuals and enterprises would register the telephone numbers for which they were responsible into this system, as would telephone carriers. I propose that the Domain Name System (DNS) be the database in which all telephone numbers are registered. ENUM (IETF RFC 2916) already specifies a mapping between E.164 telephone numbers and the DNS, so that telephone numbers can be used as keys for DNS queries. All phone calls would initiate queries into the DNS to determine the destination address of the call, which could be a carrier, an enterprise, or an individual.

3. Interconnection must be offered to all comers. Today telephone carriers are only obligated to interconnect with other carriers. But all providers and users of telephony must interconnect. All telephone carriers should provide interconnects via the Internet. Calls destined for a carrier's customers could be presented via the Internet, not just via the private inter-carrier interconnects of today. If an outbound call from a telephone carrier's subscriber cannot be routed via private inter-carrier interconnects, that call should be completed via the Internet, via routing information obtained from the DNS (as described above). The open, standard protocol for telephony interconnects over the Internet should be SIP (IETF RFC 3261).

The three mandates described above would enable anybody to directly participate in the telephony system, which would revolutionize and maximize the telephony service choices for individuals and enterprises.

SIP Server software is readily available today for no cost to enable an individual or enterprise to run their own telephony server, examples include Sip Express Router (SER)³, Asterisk⁴, and sipXproxy/sipXpbx⁵. In addition, numerous commercially available servers are available, including the Microsoft Live Communications Server (LCS).

VI. Carrier Compensation⁶

I propose that access charges be eliminated, for all parties. Providers of telephony service are all participants in the national/international telephony system. As a participant in the system of telephony, one has a duty to provide universal reach-ability, with the obligation to terminate calls for the phone numbers one services, and with the obligation to correctly route outgoing calls from the phones one services to the correct contact/carrier for termination. Each participant in the telephony network should pay for his or her own participation. If party A calls party B, A should arrange and pay for A's participation in the telephony system, and B should pay for B's participation. Again, it is instructive to relate to the way the electronic mail application works on the Internet: each party arranges their own connectivity to the Internet, and arranges for a provider to host their own email, or chooses to manage their own email server. There are no direct charges when email is sent from one party to another. Each party has made some arrangement to participate in the electronic mail system and each party pays their own way. The

³ SIP Express Router, <http://www.iptel.org>

⁴ Asterisk, <http://www.asterisk.org>

⁵ SIP Foundry, <http://www.sipfoundry.org>

⁶ See *NPRM*, WC Docket No. 04-36 at ¶ 61-62.

application telephony should work exactly in this manner. Carriers should charge their subscribers for the costs of sending and receiving all of the subscriber's phone calls, and not apportion the costs among each party of the call.

The elimination of access charges would:

- Significantly simplify the operation of the telephony system,
- Eliminate efforts whose entire justification is the arbitrage of inconsistent access charges,
- Enable individuals and enterprises to directly participate in the telephony system on an equal basis with existing carriers

VII. Disability Access⁷

Historically, the telephone network has been the ONLY communications network widely available in the US, and while this was so, it made a great deal of sense to make significant accommodations to enable the hearing and speech impaired to also communicate via the only available network, despite the fact that the telephone network was designed to only support a communications modality unusable by those with these impairments.

In today's world with ubiquitous IP communications, it no longer makes sense to make changes to the telephony system to support these users, there are other communications applications that support modalities usable by them. For example, Instant Messaging provides for synchronous real time text communications, and Email provides for asynchronous non-real time text communications. Individuals with disabilities that preclude the use of telephony should be migrated to these other applications. With mobile data devices like the RIM Blackberry, and the Danger HipTop, text-based communications can be provided in very small, portable form factors, at reasonable cost.

⁷ See *NPRM*, WC Docket No. 04-36 at ¶ 58-60.

As I have proposed above, telephony carriers' obligations to provide TRS should be migrated from TTY access over the telephone system to participation in a universal Instant Messaging network.

VIII. Public Safety and the 911 System⁸

The existing 911 system will require significant changes and modifications in order to support callers using VoIP implementations of telephony.

The current 911 system automatically provides caller location information, which is used in two ways:

1. To route the 911 call to the correct Public Safety Access Point (PSAP)
2. To provide the location of the caller to the PSAP if emergency services need to be dispatched

It is relatively straightforward to provide this location information using conventional wireline telephony, in that there is a physical, hard-wired connection from the telephone instrument to a port on a carrier's switch, and so the telephony carrier has precise knowledge of the physical location of the telephones for which it provides service, and this location information is provided to the PSAP without the intervention or participation of the caller.

VoIP technology and protocols were specifically designed to provide location independence, which is an important feature and benefit to many users. But this location independence also comes at a cost, it is technically impossible to automatically provide correct location information to the 911 system without some action by the caller, or by someone who configures and manages a caller's telephony infrastructure.

⁸ See *NPRM*, WC Docket No. 04-36 at ¶ 50-57.

Given that some sort of manual configuration of physical location will be required, errors and omissions of this location data will occur, and PSAPs will need to be prepared to handle this circumstance. PSAPs will need to confirm the physical location of the caller when the caller's location cannot be verified with absolute certainty, and in the event that a caller has reached the "wrong" PSAP, the receiving PSAP will need to be able to redirect or transfer the call to the correct PSAP.

The general populace will need to be educated about the importance of correctly configuring the location of their telephone equipment, and ultimately people are going to have assume personal responsibility for delays in assistance if they fail to do so.

That being said, there are many technical things that could and should be done to assist users to provide their correct location information to the 911 system. For example, mobile IP devices frequently obtain their current IP address from a DHCP server which is often geographically local, so DHCP servers could automatically provide the approximate location, which these devices could provide when emergency calls are made. So the correct provisioning of location into the DHCP server by a system administrator could provide accurate location information for many users.

Today, only the ILECs are capable and permitted to route calls to the PSAPs, and the PSAPs only support legacy TDM interconnections. This must change. The Commission should mandate that the PSAPs interconnect with all comers, via the Internet, using the open, standard SIP protocol. This would enable the new "telephony over broadband" providers, and end users who chose to directly connect to the telephony system (as described above), to route emergency calls to the PSAPs.

Work is currently underway at the IETF to specify and standardize how emergency calls should be handled via the SIP protocol⁹.

Funding the upgrading of these public service access points to support IP technology should not be borne only by VoIP service providers and users. This should be considered to be a fundamental upgrade to the entire telephone network, to which all providers of, and subscribers and users of, telephony service should contribute.

IX. Use of VoIP Does Not Necessarily Constitute Telephony

The Commission has asked for comment about which applications are subject to regulation and which applications are not.

Voice over IP (VoIP) is a technology for sending voice over IP networks. The mere use of VoIP is not in and of itself a reason to regulate a service.

The services that need to be regulated are these applications that are deemed universal in nature, and these applications need only be regulated to ensure that universality is achieved and maintained, and to regulate monopoly powers where and when they exist.

As I described previously, telephony has been (and remains) regulated for both of these reasons.

The use of VoIP technology to implement telephony should have no direct effect on the ongoing regulation of telephony. All participants in the telephony system should abide by the same rules and regulations. As the telephony system integrates with the Internet, and is (re-)implemented with VoIP technology, more competition and options will result, which may reduce or eliminate current monopolies, and consequently obviate the need for monopoly

⁹ Emergency Services for Internet Telephony Systems, <http://www.ietf.org/internet-drafts/draft-schulzrinne-sipping-emergency-arch-00.txt>

regulation. VoIP and the Internet enable the direct participation of end users in the telephony system, without the need for service providers.

Existing or new applications that utilize VoIP technology and are not telephony do not require regulation, until such time as they themselves become crucial applications that need to be universally available, and if universality cannot be achieved without regulation, or if this crucial universal application is provided by a monopoly. As noted previously, both Email and the WWW have achieved crucial status, are universally available, and no monopoly control presently exists for these services, and no regulation was needed for this to happen.

Pulver.com's Free World Dialup (FWD) is clearly not telephony, in that it does not connect to, or interoperate with, the telephony network, and it has not yet become a crucial application in need of universal access. So the Commission's recent ruling was correct, and consistent with the criteria I propose.

Similarly, the use of VoIP technology to link video game participants over the Internet is also clearly not telephony, and should not be subject to regulation at this time.

X. Universal Service

Today, universal service seeks to provide all US citizens with telephone service. In these comments, I have argued that other applications have achieved the same importance as telephony, and so I propose that the goal of universal service be expanded to include them, specifically Email, the WWW, and Instant Messaging.

Broadband Internet connectivity is the fundamental access technology required to use and participate in Email, WWW, and Instant Messaging systems. In addition, broadband Internet connectivity enables Telephony-over-broadband, which provides another competitive option to consumers in addition to the ILEC and Cable telephony providers. Since broadband Internet

connectivity is fundamental and required for access to these other critical communications applications, I propose that it too be included in the goals of universal service.

As I have argued above, in the IP/Internet environment, applications are distinct and separate from transport. Telephony, Email, the WWW, and Instant Messaging are all applications, and broadband Internet access is transport.

Application users and providers should fund universal service to applications. Funding for applications should take place via the “addresses” used by these applications: which are telephone numbers for the application of telephony, and are DNS domain name based addresses for Email, the WWW, and Instant Messaging.

Universal service to transport should be funded by transport users and providers.

XI. Broadband Internet Access as the New Monopoly

Broadband Internet access will likely remain a monopoly, or a duopoly, for the foreseeable future. Most American consumers have few options for broadband access, if any. Fortunately, increasingly, some consumers now have two choices, DSL from their ILEC, or “cable modem” from their cable TV provider.

A significant danger to the separation of transport and telephony (or any other application) is the bundling of applications by the broadband transport providers. There are some existing disturbing examples, and some other potential threats. A number of current broadband transport providers actively block their customers use of some applications, the most common example being the use of virtual private network (VPN) applications to connect securely to an employer’s network, commonly used for enable telecommuting. In this case, the broadband transport providers usually offer a “service” to disable this blocking, for an extra charge. As the broadband transport providers begin to offer applications in addition to broadband transport, this

blocking of possibility competitive applications would significantly limit competition, consumer choice, and could put application providers that do not own broadband transport facilities at significant disadvantage. There are at least three ways that broadband transport providers could use their (near) monopoly power against competitors and consumers:

1. Actively blocking competitors services/applications, either absolutely, or by demanding payments by their subscribers or the competitor to allow this traffic (as they do with VPN usage today)
2. Providing preferential transport of the broadband service provider's own application, or degrading the transport of a competitive application,
3. Withholding specialized transport features from a competitor, or pricing access to these specialized transport features in a way that puts the competitor at a disadvantage. One current example of this behavior is that many broadband over cable providers have engineered their networks to provide priority of voice and video packets over their networks, which can be crucial for providing a reliable, uninterrupted media stream over a heavily utilized access link. At present, only the cable provider's telephony over broadband application can use this capability, competitive offerings from Vonage or AT&T CallVantage can't, and thus are at a disadvantage. The ILECs DSL broadband transport offers no support for media stream prioritization, since the ILECs already provide legacy plain old telephony service (POTS), so they have no incentive to enable higher quality, more reliable telephony over broadband themselves, or by a third party.

So the duopoly providers of residential broadband transport (the ILECs and the CableTV carriers) are both attempting to provide applications on top of their transport networks, and are

using the capabilities of their transport networks to compete against other providers of these same applications.

The Commission should regulate broadband transport providers, to ensure that they do not block IP applications their subscribers choose to run, or to inhibit applications competitive to their own offerings, either directly, or by denying access to important transport level features and capabilities.

Neither the ILEC nor the CableTV networks were initially designed to support broadband IP transport. Technical innovation has enabled DSL over the ILEC copper pairs, and cable modem over the CableTV Hybrid Fiber/Coax (HFC) networks, but neither of these networks is anywhere close to being optimal for broadband transport. These networks provide relatively low-speed broadband, and each suffers from its own limitations (e.g. the shared downlink for cable modems)

The ideal scenario would be a completely new transport network, optimized from the beginning for, and providing only, very high speed broadband Internet connectivity, and almost certainly implemented via optical fibers directly to each residence and business. Individuals and enterprises could access any application or provider over this connection. Instead of relying on the provider of a specific application (telephony, cable TV) to build and operate this network, and then subsequently provide non-discriminatory equal access to competitors, it clearly makes more sense for this network to be built as a public utility, based on taxes and bonds paid for by end users. I urge the Commission to help lead the country to promote laws and regulations that would encourage and motivate the investment and development of such a network.

CONCLUSION

I have proposed specific changes to the telephony network that would enable end users to directly participate in the telephony system without need of a carrier or service provider, should they choose to do so, while retaining the unified and universal system we enjoy today, and preserving important features like the 911 service, disability access, and the reformation of the carrier compensation system.

I propose that certain IP-enabled applications (namely Email, the WWW, and Instant Messaging) have become as important and crucial as telephony, and the Commission should work to ensure that these applications as well as telephony become or remain universal and standard.

I have asserted that broadband Internet connectivity provides the required transport for all of these crucial communications applications, and I have proposed that the Commission use its powers to ensure open access to all competitive applications over broadband Internet networks.

Respectfully submitted,

DONALD CLARK JACKSON

May 28, 2004